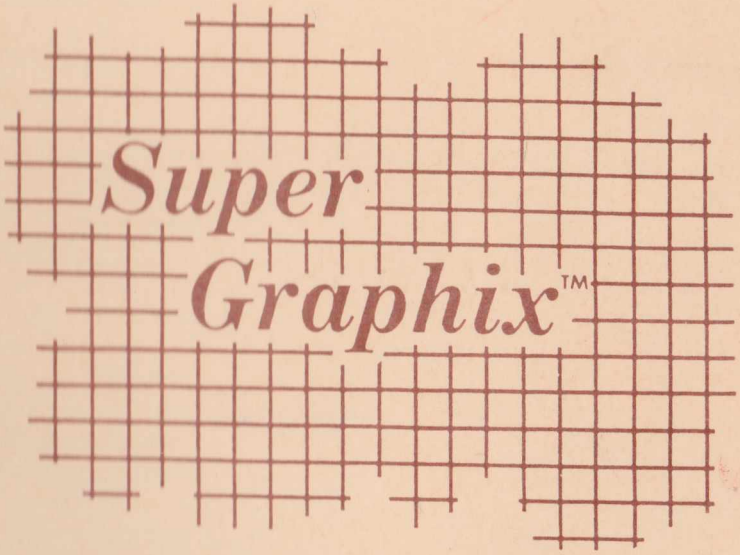
Xetec



A Printer Interface
for Commodore Computers

INSTRUCTION MANUAL

Xetec Super Graphix owner's manual

Written by Marty Flickinger

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FIRST EDITION

All specifications subject to change without notice

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INTRODUCTION

The Xetec Super Graphix printer interface for the Commodore family of computers combines the best features of older interfaces and some brand new features never before seen. Congratulations on your choice!

Super Graphix features

- Disk included with sample programs, utilities, and fonts
- 8K buffer
- 16 secondary addresses
- 3 internal screen dumps
- Near letter quality font built in
- Capable of storing 2 additional fonts
- All 3 fonts support superscripts, subscripts, underlining, bold-face, and 9 print pitches.
- Command channel (23 commands)
- Correct graphics/text ratio for all major printers
- 8 Active switches with changes constantly monitored
- Switch settings on label for quick reference
- Reset button
- Font retention on power-down

Your new interface may soon be printing things like:

```
This is a downloaded font.
This is another downloaded font!
This is the near letter quality font.
```

USING THIS MANUAL

We have made ever effort to make this manual easy to follow without neglecting any of the interface's many powerful features. If at any point you get stuck, look for a sample program (they are boxed in for your convenience) or read the text again. Don't get discouraged if it just doesn't make sense. Come back to it later and it may be much clearer.

Throughout this manual, you will be instructed to set your interface switches in certain ways to get different features. Instead of just saying 'turn switch 4 on', a diagram will be drawn to help make it clearer:

```
  12345678
ON
↓ ▯▯▯▮▯▯▯▯
```

The diagram above says 'turn switch 4 on' (notice the little indicator at the left. Any of the switches left blank do not apply in that example and should be left alone. In most cases, the numbers 1 through 8 will be left off (just be sure that you always look at the switches so that the is at the left side).

Everything you might need to know about your interface has been included in this manual. Most users, however, will only need to concern themselves with parts of the manual. Some of the appendices, for example, are a little more technical in nature and will probably be unimportant in most situations. Generally, the manual progresses from easy topics at the start to more complex ones near the end.

Any time you run into a problem, flip to appendix A on page 22 and find your problem in the left column of the table. The most likely cause or causes of your problem are listed in the right-hand column.

THE SUPER GRAPHIX DISK

The included disk contains various programs and data that might be helpful in using your interface. The disk includes:

CREATOR — Creates and edits your own fonts
LOADER — Loads fonts from disk into your interface
Fonts ready for you to use

Instructions for using CREATOR and LOADER are included in this manual (see pg. 18 and 16, respectively).

SETTING UP THE INTERFACE

Before you can try using any of your interface's special features you need to connect it properly to the rest of your system. Refer to figure 1 as you follow these steps:

- Turn off your printer, computer, and disk drive if you have one.

- For now, make sure all 8 switches on the interface are in the 'off' position:

- Plug the flat grey cable coming out of the printer interface into the connector on the back of your printer. Make sure it's pushed in all the way. If your printer has clips on the sides of the connector, lock these into place to keep it from coming loose.

- **If you do not have a disk drive:** Plug the round connector (on the end of the grey cable) into the serial port at the center of the backside of your computer. (The connector won't fit into anything but the serial port.)

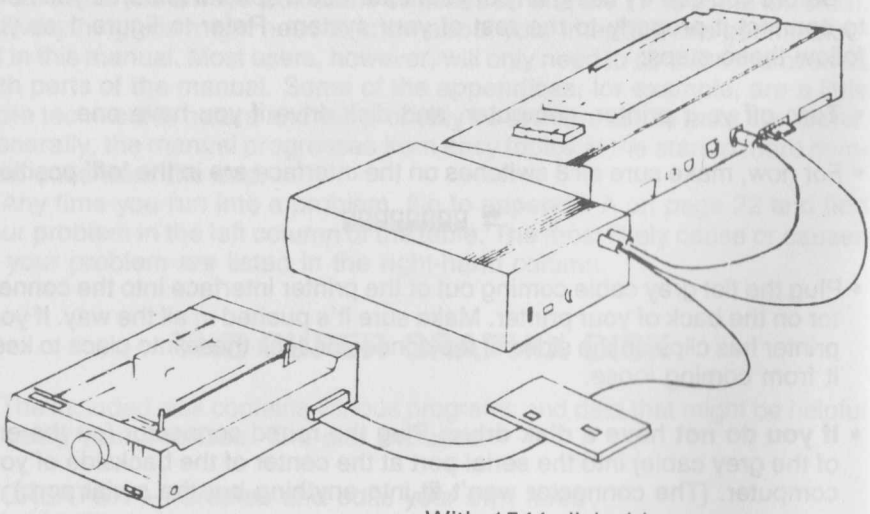
- **If you have a disk drive or two:** Leave the disk drive plugged into the computer. Plug the round connector on the end of the grey interface cable into the empty connector on the back of your disk drive.

- Unplug your Datasette if you have one.

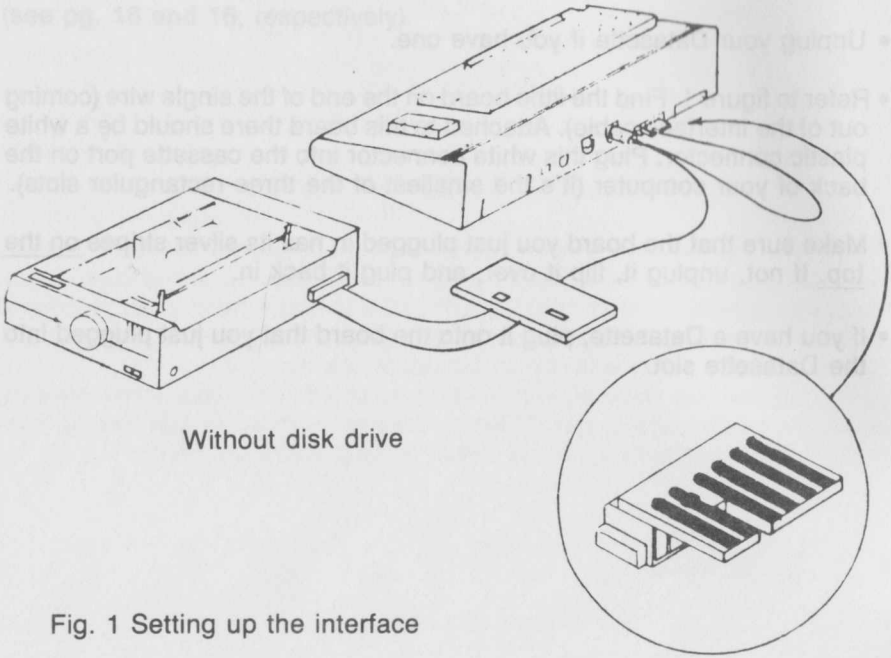
- Refer to figure 1. Find the little board on the end of the single wire (coming out of the interface cable). Attached to this board there should be a white plastic connector. Plug this white connector into the cassette port on the back of your computer (it's the smallest of the three rectangular slots).

- Make sure that the board you just plugged in has its silver stripes on the top. If not, unplug it, flip it over, and plug it back in.

- If you have a Datasette, plug it onto the board that you just plugged into the Datasette slot.



With 1541 disk drive



Without disk drive

Fig. 1 Setting up the interface

GETTING YOUR FIRST PRINTOUT

Now that you have your system all connected properly (we hope), you need to turn the whole thing on. Do it in this order:

Power-up sequence
Printer
Disk drive (if you have one)
Monitor or TV
Computer

You are now ready to see what this new device you bought will do. Be sure to type the following lines exactly as they are shown, ending each one with a RETURN.

```
OPEN 1,4
PRINT#1, "IT WORKS"
```

If you got a ?SYNTAX ERROR, you typed something incorrectly. If nothing printed, go back through the set-up steps and make sure you followed every one correctly. If you get the same results the second time, consult appendix A on page 22 for help.

Before you can proceed with any of the nifty stuff, you have to take care of a little business. The interface needs to know what kind of printer it's hooked to. The next section describes how to tell it.

HOW TO SET THE INTERFACE SWITCHES

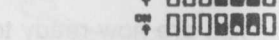
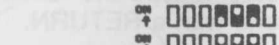
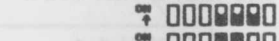
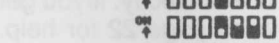
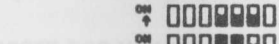
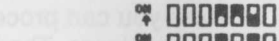
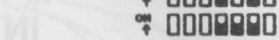
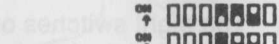
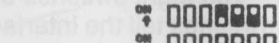
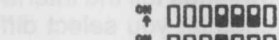
The eight switches on the interface control how it operates. Three of the switches tell the interface what kind of printer you have. The other five switches let you select different printing modes or other options. This section will tell you how to set the switches right now, and which ones you might want to change later.

At this time, let's point out that unlike dip switches on other devices (like other printer interfaces, printers, etc.), the switches on the Super Graphix are active. Basically, this means that if you flip a switch, the interface sees that change and immediately puts that change into effect. No longer do you have to turn the interface off then back on to register the change. Just flip and go!

On the back of this manual is a summary of all the switch functions. Sections for setting each group correctly follow:

Setting the printer type

Switches 5, 6, and 7 must be set for your particular printer. Look through the following list for your printer and use the settings listed next to it to set the 3 switches shown.

PRINTER	SWITCHES
Axiom GX-100	
Banana	
Blue Chip M120/10	
Blue Chip M150/10	
Blue Chip M150/15	
BMC 80, 100	
Cal-Abco Legend	
Cannon PW1080	
C-Itoh 8510	
Daisy-wheel printers (all)	
Delta 10X, 15X	
Diablo P10i, P12, P32	
Epson (all 80 column models)	
Epson (all 132 column models)	
Gemini 10X, 15X	
IBM Graphics Printer	
NEC 8023	
Mannesmann Tally Spirit 80	
Mannesmann Tally MT160/180	
Mannesmann Tally MT1600/1800	
Okidata, 81, 83 with Okigraph ROMs	
Okidata 84, 92, 93	
Panasonic KX-P1090, 1091, 1982	
Panasonic KX-P1093	
Prowriter	
Radix 10X, 15X	
Riteman	
SD-10, SD-15	
Siekosha GP-100	
SG-10, SG-15	
SR-10, SR-15	

If your printer isn't listed, try since it is the most common setting.

Once you set these three switches, you will probably never need to change them unless you change printers. So once they are set, forget about them.

The device number

All devices connected to the computer's serial bus (such as printer interfaces and disk drives) are given their own device number. Printers are usually given a device number of 4. If you have a second printer, it is usually called device 5. Switch number 8 tells the interface which device number to use:

Device #	Switch 8
4	
5	

Unless you have two interfaces connected at the same time, you should set yours to device 4 by shutting switch 8 'off'.

The four modes of operation

At this point, you should have switches 5, 6, 7, and 8 set properly. With a few rare exceptions, most users can now forget about these switches and concentrate on the first four. These will be the ones you will most often change to achieve different printing results. First let's look at number 3 and 4 which set the interface's *mode*.

Switches	Mode
	1525 Emulation
	SuperGraphix mode
	ASCII conversion
	Transparent

Let's briefly describe what each of these modes does (for a detailed discussion, see 'A closer look at the four modes,' p. 15)

- 1525 Emulation - This mode makes your printer act exactly like Commodore's 1525 printer (except, perhaps, for being faster).
- Super Graphix mode - This mode is close to the 1525 emulation mode, but it allows you to do a few more things (such as getting more readable BASIC listings and sending special control codes to your printer).
- ASCII conversion (pronounced ASK-EEE) - In this mode text in the Pet ASCII format is changed to text in the standard ASCII format (the one your printer uses). All other codes go right to your printer unchanged. For more info on Pet and standard ASCII, see appendix H on page 29.
- Transparent - In this mode, every code goes right through the interface to the printer unchanged (as in a transparent piece of glass).

Later, you will be instructed which mode to use in what situation, but for now remember this: if you are printing from BASIC, you will most likely want to use either 1525 emulation or Super Graphix.

The font select switches

Switches 1 and 2 control how text is printed. By setting the switches correctly, you choose to print text normally, in the near-letter-quality font, or in either of the two fonts you can load into the interface from the program disk.

Text output	Switches
Normal	
NLQ font	
Font 1	
Font 2	

A good example of using these switches is as follows: using a word processor, you could shut 1 and 2 off and print a document in normal text to see if it's okay, then set the switches for near-letter-quality or one of the fonts and print it again to get your finished copy.

Well, that's all there is to setting the switches. It wasn't too tough, was it? A summary of all the switch functions is printed on the back cover for easy reference.

USING WORD PROCESSORS AND PRE-PACKAGED SOFTWARE

This section deals with getting your interface to print correctly with software that you have bought (especially word processors). The next section will show you how to communicate with the interface in programs that you write.

Let it be said that this section in no way attempts to help you make a program print that isn't designed to. If that is your intention, you will need to read up on the next section and then modify the software so that it will print. The intent here is to teach you how to take software that has some provision for printing (be it text, pictures, or whatever) and use it and the interface in such a way that you get the desired print out correctly.

There are basically two types of software you will encounter. First, there are those that ask you what printer you have, either with a menu (e.g. Easy Script) or with loadable printer files (as in Paper Clip). To make these programs print right, you can do one of two things:

- Tell it that you have the Commodore printer (it may go under the names 1525, CBM, or PET). Then set the interface in the 1525 Emulation mode ( ) and all should work. You have the option of selecting normal text or fonts (with switches 1 and 2). This set-up will usually limit you to just printing text or graphics. If you want to do some things like underlining, superscripts, etc., you should use the other set-up:

- If your printer is one of the options listed in your software (or your printer is compatible with one), select that printer and set the interface in the transparent mode (↑ □□■■□□□□). You have the option of turning fonts on or off with switches 1 and 2. Whatever you select, all features such as underlining, pitches, superscripts, etc. should work. For more information on these things, see the section on escape codes on page 16.

The second type of software you might run into never gives you any chance to select the type of printer you have. 99.9% of the time this means it is written for the 1525 printer. This type of software is easily made to work with the interface: just set the interface to the 1525 emulation setting (↑□□■■□□□□) and select normal text or fonts (with switches 1 and 2).

YOUR PRINTER'S LIMITATIONS

Unfortunately, not all printers are capable of printing everything the Super Graphix will do. Refer to the chart below to see what will and won't work with your printer (based upon how switches 5, 6, and 7 are set).

Switches	Graphics?	Fonts?	Compressed fonts?	Super fonts?
↑ □□□■■■□	YES	YES	YES	YES
↑ □□□■■■□	YES	YES	YES	YES
↑ □□□■■□□	YES	NO	NO	NO
↑ □□□■□■□	YES	YES	NO	NO
↑ □□□■■□□	YES	NO	NO	NO
↑ □□□■□□□	YES	YES	NO	NO
↑ □□□■■□□	YES	YES	YES	YES
↑ □□□■□□□	NO	NO	NO	NO

PRINTING GRAPHICS

Since you had to sit through all that stuff about switches and modes and things, it's time to do something a little more exciting. Select normal text printing and set the mode to Super Graphix (↑ ■■■□□□□□). Now, let's see some graphics characters printed:

```
OPEN 2,4                (remember to hit RETURN)
PRINT#2,"♥♥♥♥"          (To get ♥ , hold shift and push S)
CLOSE 2
```

Four hearts should have printed. If you get a bunch of garbage, check to see that you have the printer type switches and the mode switches set correctly.

****NOTE: If you have set the printer switches all 'on' (ON ↓ 00000000 - the setting for daisy wheel printers), graphics characters cannot be printed.

Now try some other graphics characters or maybe mix text and graphics on the same line.

PRINTING USING FONTS

If you're ready, we will begin to explore the font capabilities of your interface. First, select the NLQ font and the Super Graphix mode (ON ↓ 00100000). Then type the following lines (in this example, to get the lower case letters just type the letter; to get the capitals, hold shift and type the letter):

```
open 3,4,7
print#3,"This is the NLQ font. Wow!"
close 3
```

****NOTE: If the text was printed in standard dot matrix, your printer may not be capable of printing fonts (not all are). Check the chart on page 7 for details.

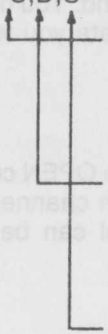
Now select user font 1 (ON ↓ 01000000) and repeat the above program and see what happens. Junk printed out because you haven't loaded a font from disk yet. You will learn how to do this a bit later.

PRINTING FROM BASIC PROGRAMS

If you intend to write or modify BASIC programs that will use your printer, you will need to become familiar with four BASIC commands that allow you to talk to the printer. They are 'OPEN', 'CLOSE', 'PRINT#', and 'CMD'. Let's take a look at each one at a time.

• The OPEN command must be used to open a channel to your printer before you can print data to it. It's about the same as dialing someone's number before you can talk to them on the phone. The format for the OPEN command is as follows:

OPEN C,D,S



Channel number. This can be any number you choose from 1 to 127. Whatever number you pick, you will use it later when you actually print data (you are just preparing to at this point).

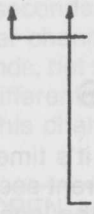
Device number. This tells the computer what device you will be sending the data to. Your interface is either device 4 or 5 depending on how switch 8 is set. Four is the one normally used.

Secondary address. This number can be left off (then it would be OPEN C,D). If used, this number tells the interface what to do with the data you will be sending it. Different numbers here allow you to access the different features of your interface and printer. All the legal secondary addresses and what they do will be introduced on page 10.

OPEN 1,4	Opens channel 1 to the interface
OPEN 23,4,7	Opens channel 23 to the interface with secondary address 7

• Once a channel has been 'OPEN'ed to your interface, the PRINT# command is used to actually send data to it (from there it goes to your printer and then gets printed). The format of this command is:

PRINT#C, "Your data to be printed goes here"



Channel number. This is that number from 1 to 127 that you picked in the OPEN command. You have to supply this number because more than one channel can be open at once, so you have to tell which channel to print through.

This is where you put the data you want printed. This part is the same as in a regular PRINT command (except it goes to the printer).

PRINT#1, "I WANT THIS PRINTED"
PRINT#23, "THE ANSWER IS";A

• The CLOSE command is used to undo an OPEN command. You don't have to close a channel until you are done sending all the data you want. The format is simple:

CLOSE C

Channel number that you chose in the OPEN command. This tells the computer exactly which channel to close (remember, more than one channel can be open at once).

CLOSE 1	Closes channel number 1
CLOSE 23	Closes channel number 23

• The last of the four BASIC commands is CMD. This command tells the computer to send all data to a channel instead of the screen. This is especially useful for listing BASIC programs or disk directories to the printer. Here's how you would do it:

OPEN 1,4	You must open a channel first
CMD 1	This means 'send everything to channel 1'
LIST	This will list the program to the printer
PRINT#1	This says 'send things to the screen now'

There are ways to make the interface list programs in different forms. For details, see 'Listing BASIC programs' on page 13.

SECONDARY ADDRESSES

Now that you are familiar with the OPEN command, it's time to let you know some of the options you can choose by using different secondary address numbers (the 7 in OPEN 1,4,7). Here is a list of the legal ones and what they make the interface do.

Secondary Address	Interface Function
0	Upper case text and graphics
1	Upper case text and graphics with no auto line feeds sent
2	Upper case fonts and graphics

3	Hex dump. All data you print is dumped to the printer in a debug mode which will be explained on page 14.
4	Transparent. All the data you print goes directly to the printer regardless of the mode switches.
5	Transparent. Same as 4 except no auto line feed is sent.
6	Transparent except that text is printed in fonts.
7	Upper/lower case text and graphics.
8	Upper/lower case text and graphics with no auto line feeds.
9	Upper/lower case fonts and graphics
10	Reserved
11	Font downloading
12	C-64 Hi-Resolution dump
13	Upper case screen dump
14	Upper/lower case screen dump
15	Command channel. Instead of text to be printed, you send commands to the interface with this sec. address. See the next section.
20 +	If you add 20 to any of the above numbers (except 15) the interface will be 'locked' in that mode. See the section on locking (p.14)

THE COMMAND CHANNEL

As a review, different secondary addresses in the OPEN statements cause the interface to do different things with the data it receives. A very special case is secondary address 15 which is called the command channel. Unlike any other channels, the command channel looks at the data you send as commands, not stuff to be printed to the printer. The commands it recognizes select different options and some really special things. First, let's see how to use this channel, and then all of the commands will be described.

```
OPEN 1,4,15      Notice the Sec. address of 15
PRINT#1,"I"      The 'I' command is sent
```

If you got a ?FILE OPEN ERROR on line 1, type CLOSE 1 (RETURN) then try the two lines again.

When you get it to work, a short message (called the Identification) should be printed. That's what the 'I' command does - it identifies the model and revision of the interface you have.

Many people make the following mistake when they first try to use the command channel. Can you see what's wrong?

```
OPEN 1,4,15
PRINT#1, "I"
PRINT#1, "THE COMMAND WORKS!"
```

The error above is that the last line is supposed to print "THE I COMMAND WORKS!" to the printer. What will happen, however, is the interface will look at it like a 'T' command, an 'H' command, an 'E' command etc. because you are sending it to the command channel. If you want to send commands and print text, do something like this:

```
OPEN 1,4,15
OPEN 2,4,7
PRINT#1, "I"
PRINT#2, "THAT'S MUCH BETTER!"
```

There is a total of 22 different commands that your command channel will recognize:

- U Unlock the interface. This will undo a lock that was forced by a secondary address of 20 or more.
- I Print the interface's identification.
- E Empty out the buffer
- R Remove the buffer
- B Put the buffer back in
- L Make the buffer large (erase fonts)
- M Change how BASIC programs are listed. See p. 13
- V Change how BASIC programs are listed. See p. 13
- G Change how BASIC programs are listed. See p. 13
- A Change how BASIC programs are listed. See p. 13
- K Change how BASIC programs are listed. See p. 13
- 8 Start printing 8 lines per inch
- 6 Start printing 6 lines per inch
- SU Underline spaces as well as text
- SB Leaves spaces blank between underlined words.
- Wn Set the print width to n columns. See appendix C
- QD Disables listing mode (cannot list BASIC programs)
- QE Enable listing mode again
- 4 Using C-64 computer (default)
- 2 Using Vic 20 computer - important for screen dumps
- D Restart screen dump
- FN Shut off auto line feeds
- FY Turn auto line feeds back on

More than one command can be sent at one time. For example

```
OPEN 1, 4, 15
PRINT#1,"UI"
```

would unlock the interface and print the identification. If an illegal command is sent, the interface will make the printer beep to let you know.

LISTING BASIC PROGRAMS OR DISK DIRECTORIES

As was shown before, the way to list a BASIC program or disk directory is as follows:

```
OPEN 1,4
CMD 1
LIST
PRINT#1
```

Graphics characters and control codes (such as cursor movements) can make a BASIC listing hard to read, especially if someone has to enter the program from the listing. To alleviate this problem, several different ways of listing graphics characters and control codes are available for you to use.

In the 1525 emulation mode, control codes will be listed as they look on the screen (a reverse heart, for example). In the Super Graphix mode, however, control codes will be listed in what are called mnemonics (pronounced NEW-MONICS). The mnemonic for clear screen is [CLR]. It's easier to recognize and remember than an obscure graphic character. The M and V commands when sent to the command channel will specify which mode you would like them listed in (M for mnemonics or V for Video method).

When the computer is turned on, graphics characters are listed as they look on the screen, but they can be listed two other ways:

- Keystrokes. If you send 'K' to the command channel, the keystroke mode is selected. Keystrokes show what key presses produce that character. For example, a ♥ is listed as [SS] which means SHIFT- S while ◥ is listed as [C*] meaning C= *.

- ASCII values. If you send 'A' to the command channel, the ASCII listing mode is turned on. In this mode, graphics characters are listed like this: [176].

- Graphics. The 'G' command will return the listing mode to 'graphics'.

Example:
To list a program using mnemonics and keystrokes:

```
OPEN 1,4
OPEN 2,4,15
PRINT#2,"MK"
CMD 1
LIST
PRINT#1
```

LOCKING THE INTERFACE

In some circumstances you may want to 'lock' the interface into one of the secondary addresses listed above. To do this, just open a channel with 20 added to its secondary address and print something. Here's an example:

```
OPEN 1,4,27     (Lock in sec. address 7)
PRINT#1         (Complete the lock)
```

THE HEX DUMP

If you OPEN a channel with a secondary address of 3, the value of each piece of data that's sent to the interface will be printed. In this mode, if you sent the word 'HI', the printer will print 48 49 OD. These are the hexidecimal values for 'H', 'I', and a carriage return. This mode is basically intended to help you debug your print routines because it shows the exact value of all data that you send to the interface. Appendix H on page 29 shows the decimal and Hexidecimal values for each character set.

TAB

Avoid using the TAB function in PRINT# statements. If you must use it, you must do this

```
PRINT#1, " "TAB(5);"TEXT"
```

or Commodore's BASIC will give you a ? SNYTAX ERROR. Also, when using the TAB function, you must print your data through a channel *that does not send auto line feeds* (ones with secondary addresses of 1, 5, or 8). Consequently, every time you want to start a new line, you must send a line feed yourself - CHR$(10). This example should clear all this up.

```
10  REM TAB EXAMPLE
20  OPEN 1,4,8
30  PRINT#1, " "TAB(5)"20TH"
40  PRINT#1, " "TAB(20)"20TH"
50  PRINT#1, " "TAB(10)"10TH"
60  PRINT#1, CHR$(10):REM GO TO NEXT LINE
70  CLOSE 1
```

A CLOSER LOOK AT THE FOUR MODES

This section gets a little more technical but more specific about the operation of the four modes the interface can be placed in. Don't worry if they make no sense to you. You can use the modes without actually knowing what they are doing. But the details are here, just in case.

1525 Emulation mode

This mode acts just like the 1525 printer. This means that the optional listing modes (ASCII, keystrokes, and mnemonics) will not work. Also, you cannot send special codes to your printer because the interface will block them in the emulation mode. The print width is held at 80 characters no matter how wide your printer is or what you set the width to. PET ASCII is of course converted to standard ASCII. You can use fonts in this mode.

SuperGraphix mode

In this mode, just about everything that the interface will do is enabled including all the listing modes, ASCII conversion, fonts, and adjustable print width. Also, any codes that don't correspond to 1525 functions will be passed on through to the printer in case it will recognize it.

ASCII conversion mode

In this mode, nearly all features of the interface are turned off except for the command channel and the conversion from PET ASCII to standard ASCII. This means that Commodore graphics symbols can be printed.

Transparent mode

This mode is completely transparent, with the possible exception of an auto line feed being inserted after each carriage return (if auto line feeds are on). If the font select switches (1 and 2) are set to anything but normal text, the interface will not be transparent but will print in fonts with no ASCII conversion.

DOWNLOADING FONTS FROM DISK

The Near-Letter-Quality font can be used at any time just by setting switches 1 and 2 appropriately. The two user fonts, however, must be loaded from the Super Graphix disk (see p. iv) before you can use them. Since these user fonts are loaded into the interface RAM, they will be lost if the interface is shut off long enough.

The printing buffer starts out at almost 8K at power-up, but for each font you load into the interface, the buffer gets smaller and may even be eliminated. You can, with the 'L' command to the command channel, erase the fonts and restore the buffer to it's full size.

To load a font into the interface from the program disk, load the program called LOADER and RUN it. It will list the fonts on the disk and ask which one to load. Then it will ask which font number to download it to (user 1 or 2). When it is done, that font is ready for use. You can now load another one or stop.

Fonts on the disk that have the prefix of 'super' are higher resolution fonts (so they look better). These 'super' fonts can be loaded instead of a normal one, but they will cut your buffer size twice as much as a normal one. You can even load both user fonts with 'supers'.

Technical note: Secondary address 11 is set aside solely for the purpose of downloading fonts. It should not be used for the printing of text or the sending of commands. The format for data sent to the download channel is as follows:

1st byte - Number indicating font being loaded
1 = User 1, 2 = User 2, 3 = Right half of user 1 superfont, 3 = Right half of user 2 super

864 bytes - Font pass 1 images (9 per character)

864 bytes - Font pass 2 images (9 per character)

All 1729 bytes must be sent before the interface considers the font to be loaded.

ESCAPE CODES AND FONT SPECIAL FEATURES

Escape codes are sequences of codes that you send to your printer or interface which are not printed but select certain options (very similar to the command channel, but sent right along with the text to be printed). All escape codes must start with the escape character (27). Here's an example of an escape code sent within a line of text:

```
PRINT#4,"NOW IT WILL CHANGE ";CHR$(27);"GTO BOLD"
```

The escape, CHR$(27), tells the printer and the interface that the next code sent (the 'G' in this case) is an escape command. The escape G (or ESC G) for most printers turns on the boldface mode.

The Super Graphix recognizes 24 escape codes. If the interface receives one of these 24 sequences, it will obey the sequence's command and then send it on to the printer. If any escape code is sent that the interface doesn't recognize, the interface will ignore it and send it on to the printer.

Following is a list of the 24 escape codes the interface recognizes and what they do to the interface. All of them in some way affect how fonts are printed. Also listed here are four codes that aren't escape codes but also affect fonts.

Sequence	Codes	Effect
ESC 1	27 1	Select font 1 (NLQ)
ESC 2	27 2	Select font 2 (User 1)
ESC 3	27 3	Select font 3 (User 2)
ESC 4	27 4	Select dot matrix
ESC 14	27 14	Turn on expand mode
ESC 15	27 15	Turn on compress mode
ESC 20	27 20	Turn off compress mode
ESC '-' 1	27 45 1	Turn on underlining
ESC '-' 0	27 45 0	Turn off underlining
ESC '0'	27 48	Set to 8 lines per inch
ESC '2'	27 50	Set to 6 lines per inch
ESC '3'n	27 51 n	Set line spacing to 'n' increments
ESC 'A'n	27 65 n	Set line spacing to n/72''
ESC 'B' 1	27 66 1	Select pica pitch
ESC 'B' 2	27 66 2	Select elite pitch
ESC 'B' 3	27 66 3	Turn on compress mode
ESC 'B' 4	27 66 4	Elite pitch = 13 CPI
ESC 'B' 5	27 66 5	Elite pitch = 12 CPI
ESC 'E'	27 69	Turn on emphasized mode
ESC 'F'	27 70	Shut off emphasized mode
ESC 'G'	27 71	Turn on boldface
ESC 'H'	27 72	Shut off boldface
ESC 'S' 0	27 83 0	Turn on superscripts
ESC 'S' 1	27 83 1	Turn on subscripts
ESC 'T'	27 84	Shut off sub- or superscripts
ESC 'W' 1	27 87 1	Turn on expand mode
ESC 'W' 0	27 87 0	Shut off expand mode
14	14	Turn on expand mode
15*	15*	Turn on compress mode
18*	18*	Shut off compress, pitch = pica
20*	20*	Shut off compress and expand

* cannot be used in 1525 or Super Graphix modes

This interface only looks for these codes in certain situations:

1) When using secondary addresses 3, 4, or 5, the interface does not look for escape codes.
2) When using secondary addresses 2, 6, and 9 the escape codes will have an effect.
3) For all other secondary address, the escape codes will work unless the font selection switches (1 and 2) are set off (normal text output).

THE RESET SWITCH

The interface is also equipped with a reset switch. Pushing this switch will clear out the buffer and set all modes and parameters like they would be if you had just turned the interface on. The only thing the reset switch does not do is destroy the loaded fonts.

CREATING NEW FONTS

On the Super Graphix disk (see p. iv) there is a program called CREATOR which helps you create your own fonts or change the ones on the disk.

Type LOAD "CREATOR",8 and when it's loaded, type RUN. You should see the main menu:

1) Create a font
2) Disk file maintenance
3) Exit

We'll start with choice 3 since it's the simplest. This exits the creator program. Tough, huh?

Selection 2 will show you a second menu:

1) List all fonts on this disk
2) Erase a font
3) Rename a font
4) Go back to main menu

These are all pretty self-explanatory so let's get to the one you're most anxious to use, selection 1-Create.

When you choose to create a font, the first question you will be asked is if you want to create a normal or super font. Normal font characters are formed from a 9x16 matrix, whereas a superfont uses a 18x16 matrix. Some printers that will print normal fonts may not be able to print superfonts. It's a good idea to try printing a superfont that's already created before you spend the time creating one.

The next question you will be asked is if you want to create a font or edit one. The only difference between the two choices is that if you are creating one, you will start with blank grids; whereas if you are editing a font, you be asked the name and it will be loaded. HINT: Use the edit feature to look at how some of the fonts on the disk are formed. Doing so might help get you started creating your own.

Soon a grid should be displayed on the screen. The lines at the top right show which character is being worked on. To define how the character should look, move the cursor (the checkerboard pattern) around on the grid using the cursor keys or a joystick in port 1. Use 'S' and 'R' to set and reset individual dots, or use the fire button to 'toggle' a dot.

While you are forming a character, you can do a trial print of the image on the grid by pushing the 'P' key (or 'O' if you have a Gemini or SG- 10 type printer).

When you are satisfied with the character you have formed, push the f1 key to store the image in memory and move to the next character. You can skip around without saving characters by using the + – and J keys (J will ask what character to jump to: just push the key).

When you are ready to quit, push 'Q'. You will be asked what name this should be saved as. If you didn't do anything worth saving, type 'Q' and return. If you chose to save it, the font will be saved and verified. If you are editing a font, you must save the new version under a different name or you will get an error.

Well, that's all there is to creating fonts. Sounds simple, but it's painstaking. Good luck!

THE BUFFER

Throughout this manual, references are made to the buffer. Just what is the buffer? Actually, in the Super Graphix interface the buffer is the collective name for 3 areas of RAM in the interface that help it print faster and do other amazing things. You need not worry about them (they will take care of themselves), but it is nice to know what they are doing.

The graphics buffer is always 512 bytes long and is entirely dedicated to holding graphics for speedy printing. The text buffer is also 512 bytes long. It's purpose is to hold the current line of text for font processing. The main buffer holds all data waiting to go to the printer.

The main buffer size will decrease as more fonts are loaded to the interface. A smaller buffer size will just slow things down a bit but everything will still work the same.

User Font 1	User Font 2	Main buffer	Total buffer size
None	None	6912	7936
Normal font	None	5184	6208
None	Normal font	3456	4480
Normal font	Normal font	3456	4480
Super font	None	1728	2752
None	Super font	0	1024
Super font	Normal font	1728	2752
Normal font	Super font	0	1024
Super font	Super font	0	1024

Downloaded fonts vs. buffer size

SCREEN DUMP PROGRAMS

Your Super Graphix interface is equipped with 3 brand new secondary addresses that make screen dumps a breeze!

Low Resolution

A low resolution screen dump will print all the text and/or graphics characters that are on the screen. Both of the following examples use secondary address 13 to send the screen data, but if the screen is displayed in the upper/lower case mode, you will want to use 14 instead. Push the C= and SHIFT keys at the same time to see the difference between how secondary addresses 13 and 14 will print the same screen.

```
10 REM LO-RES DUMP FOR C-64
20 OPEN 4,4,13:REM USE 4,4,14 FOR UPPER/LOWER CASE
30 FOR I=1024 TO 2023
40 PRINT#4,CHR$(PEEK(I));
50 NEXT I:CLOSE 4
```

```
10 REM LO-RES DUMP FOR THE VIC 20
20 OPEN 1,4,15,"2":CLOSE 1:REM TELL IT YOU HAVE A VIC
30 OPEN 4,4,13:REM USE 4,4,14 FOR UPPER/LOWER CASE
40 FOR I=7680 TO 8162:REM FOR UNEXPANDED VIC
40 FOR I=4096 TO 4578:REM FOR EXPANDED VIC
50 PRINT#4,CHR#(PEEK(I));
60 NEXT I:CLOSE 4
```

High Resolution

A high resolution dump prints an image made of individual dots instead of characters. There is no special provision for a Vic 20 hi-res version, so a whole screen dump is listed here. Note that the C-64 screen dump is really a memory dump because it prints the picture that is in the hi-res bit map - not necessarily what is on the screen.

```
10 REM C-64 HI-RES BIT MAP SCREEN DUMP
20 OPEN 4,4,12
30 FOR I=8192 TO 16191
40 PRINT#4,CHR$(PEEK(I));:REM NORMAL DUMP
40 PRINT#4,CHR$(255-PEEK(I));:REM INVERSE DUMP
50 NEXT I:CLOSE 4


10 REM VIC-20 HI-RES SCREEN DUMP
20 REM TO PRINT AN IMAGE OF THE SCREEN, USE
30 REM 'GOSUB 63000' (OR 63001 FOR AN INVERSE DUMP)
40 REM ADD THESE LINES TO YOUR PROGRAM
63000 RV=0:GOTO 63010
63001 RV=1
63010 A=PEEK(36869)
63020 SM=(PEEK(36866)AND 128)*4+(A AND 112)*64
63030 IF A>239 THEN GM=32768:GOTO 63080
63040 A=A AND 15
63050 IF A<4 THEN GM=32768+A*1024:GOTO 63080
63060 IF A>11 THEN GM=A*1024-8192:GOTO 63080
63070 PRINT"ERROR":STOP
63080 CLOSE 99:OPEN 99,4
63090 PRINT#99:PRINT#99,CHR$(8)
63100 FOR X=175 TO 0 STEP-7:FOR Y=0 TO 22
63110 XS=X AND 7
63120 C=SM+Y*22+INT(X/8)
63130 C1=PEEK(C):C2=32:IF X>7 THEN C2=PEEK(C-1)
63140 FOR I=0 TO 7
63145 GW=PEEK(GM+8*C2+I)*256+PEEK(GM+8*C1+I)
63150 GB=INT(GW/(2↑(7-XS)))
63153 GB=GB-128*INT(GB/128)
63155 IF RV=1 THEN GB=255-GB
63160 PRINT#99,CHR$(GB OR 128);:NEXT I,Y
63170 PRINT#99:NEXT X
63180 PRINT#99:CLOSE 99:RETURN
```

APPENDICES
A — TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSES
?SYNTAX ERROR ?FILE OPEN ERROR ?FILE NOT OPEN	These errors are the user's fault. Read the section on printing from BASIC.
Computer locks up when you try to print something	Interface not hooked up properly Printer is turned off Printer is not on line
Nothing ever prints (you just get 'READY')	Using wrong device number Printer is off or off line
?DEVICE NOT PRESENT	Using wrong device number, Interface cables not hooked up correctly
Lines printed on top of one another	Using secondary addresses 1,5,8
Lines double-spaced	Your printer's auto line feed is on.
Printing garbage	Printer selection switches (5,6,7) set wrong Using wrong mode
Fonts come out as garbage	None downloaded Printer selection switches set wrong
Fonts print in dot matrix	Printer can't print fonts See chart on page 7
Printer beeps	Out of paper Illegal command sent to command channel

B — AUTOMATIC LINE FEEDS

Under certain conditions, the interface will or will not send an auto line feed after each carriage return. The following chart shows when to expect one:

Switches	Secondary Address 0	1	2	3	4	5	6	7	8	9
▪▪□□□□□□□	X		X		X		X	X		X
▪□▪□□□□□□	X	X	X		X		X	X	X	X
□▪▪□□□□□□	X	X	X		X		X	X	X	X
▪▪▪□□□□□□	X	X	X		X		X	X	X	X

Auto line feed occurrences

C — PRINT WIDTH

In the context of this manual, what is meant by the print width is how wide the interface thinks the printer is. For example, if you have a 132 column printer but your interface's width is set to 80, you will never be able to go beyond the 80th column (the interface thinks that's all there is).

In the 1525 emulation mode, the width is fixed at 80 and there is no way to change it. In the Super Graphix mode the width defaults to 80 unless you set switches 4,5, and 6 like this ▪□□□▪▪□□ (the 132 column Epson setting) in which case, it defaults to 132. If the width is at 80, you won't be able to print graphics beyond the 80th column. You will be able to print text past the 80th position. This allows you to use the printer's compressed mode.

In the ASCII conversion and transparent modes, the width function is not applicable. In these modes, your printer will start a new line when it is incapable of printing any farther.

Using the command channel, you can set the width to anything from 1 to 255. Do it like this:

```
OPEN 1,4,15
PRINT#1,"W"CHR$(25)
```

Change the 25 to whatever width you want. If you specify a width of zero, the width becomes infinite (is never checked).

D — 1525 GRAPHICS COMMANDS

In the 1525 emulation and Super Graphix modes, the 1525's special graphics commands can be used (even if a font is selected).

CHR$(8) - Dot graphics

This command puts the interface into the dot graphics mode. When in this mode, if you send codes from 128 to 255, they will be printed as columns of dots.

For example, to print the greek letter Omega:

```
OPEN 1,4
PRINT#1,CHR$(8)CHR$(222)CHR$(225)CHR$(129);
PRINT#1,CHR$(129)CHR$(225)CHR$(222)
CLOSE 1
```

CHR$(14) - Double width on

This command starts the double-width mode. If the dot graphics mode was on, it will be shut off. The double-width mode stays on until you shut it off with a CHR$(15). If you are trying to send code 14 to your printer, see the table below to find what code to send.

CHR$(15). - Double width off

This shuts off the double- width and the dot graphics modes. If you are trying to send a code 15 to your printer, see the following table to see what code you should actually send.

Switches	To get 14 send:	To get 15 send:
▪▪▪▪▪▪▪▫	14	20
▪▪▪▪▪▪▫▪	14	20
▪▪▪▪▪▪▫▫	31	30
▪▪▪▪▪▫▪▪	14	15
▪▪▪▪▪▫▪▫	14	15
▪▪▪▪▪▫▫▪	14	20
▪▪▪▪▪▫▫▫	14	20
▪▪▪▪▫▪▪▪	14	15

CHR$(16) - Tab

This command is used to specify where to start printing next. For example, to print 'HELLO' starting at the 19th column:

```
OPEN 1,4
PRINT#1,CHR$(16)"19HELLO"
CLOSE 1
```

CHR$(27)CHR$(16)CHR$(n1)CHR$(n2) - Dot tab

This command, only usable when the dot graphics mode (CHR$(8)) is on, specifies which dot column to start printing at next (number of dots instead of number of characters). The number of dots is calculated by n1 + n2 × 256. For example, to print an astrisk 300 dots from the left side:

```
OPEN 1,4
PRINT#1, CHR#(8)CHR$(27)CHR$(16)CHR$(44)CHR$(1);"*"
    (because 44 + 1 × 256 =300).
CLOSE 1
```

CHR$(26)CHR$(n)CHR$(g) - Graphics repeat

This command can only be used while in the dot graphics mode. It repeats the dot graphic 'g' (must be at least 128) a total of 'n' times. For example, to print a bar 200 dots long:

```
OPEN 1,4
PRINT#1,CHR$(8)CHR$(26)CHR$(200)CHR$(255)
CLOSE 1
```

CHR$(17) - Cursor down mode

Temporarily switch to upper and lower case.

```
OPEN 1,4,0
PRINT#1, "UPPER CASE";CHR$(17);"LOWER CASE"
CLOSE 1
```

CHR$(145) - Cursor up mode

Temporarily switch to upper case.

```
OPEN 1,4,7
PRINT#1,"LOWER CASE";CHR$(145);"UPPER CASE"
CLOSE 1
```

CHR$(18) - Reverse on

This turns on reverse printing mode (white letters on black background.)

```
OPEN 1,4
PRINT#1, "NORMAL AND ";CHR$(18);"INVERSE"
PRINT#1, "THIS WILL [RVS ON] DO IT, TOO"
CLOSE 1
```

CHR$(146) - Reverse off

Turn off reverse printing mode. If you don't shut it off, it will automatically turn off at the end of the current line.

```
OPEN 1,4
PRINT#1,CHR$(18);"INVERSE ";CHR$(146);"NORMAL"
PRINT#1,CHR$(18);"INVERSE[RVS OFF] NORMAL"
CLOSE 1
```

E — PRINTER COMPATIBILITY

The following table shows what information is stored internally for each of the eight printer type settings. If your printer isn't listed in the chart on page 4, you might want to get out your printer manual and look for which of the settings below most closely matches your printer's functions. Then use that setting for switches 5, 6, and 7. If none of the settings is even close, use the last one (for daisy-wheel printers).

Function ↓ 567	567	567	567	567	567	567	567	567
Double width start	14	14	31	14	14	14	14	14
Double width stop	20	20	30	15	15	20	20	15
Carriage return shuts off double-width?	Yes	Yes	No	No	No	Yes	Yes	No
Set to 6 lines/inch	27	27	27	27	—	27	27	—
	50	50	54	65	—	50	50	—
Set to 8 lines/inch	27	27	27	27	—	27	27	—
	48	48	56	66	—	48	48	—
Set line feed to graphics size	27	27	27	27	8	27	27	—
	65	65	37	84	—	65	65	—
	7	7	57	49	—	6	7	—
	—	—	14	53	—	—	—	—
Dot graphics: bit 1 at bottom or top?	Bot	Bot	Top	Top	Top	Bot	Bot	—
Dot graphics mode...	27	27	3	27	8	27	27	—
	75	75	—	83	—	75	75	—
... followed by	n n	n n	—	xxxx	—	n n	n n	—
End graphics mode	—	—	3	—	15	—	—	—
	—	—	2	—	—	—	—	—
Graphics:								
Horizontal dots/inch	60	60	60	80	60	80	60	—
Vertical dots/inch	216	144	144	144	—	216	216	—
Print width	80	80	80	80	80	80	132	—
Capable of fonts?	Yes	Yes	No	Yes	No	Yes	Yes	—
Normal font prefix	27	27	—	27	—	27	27	
	76	76	—	83	—	76	76	—
Normal compressed and Super font prefix	27	27	—	—	—	27	27	—
	90	122	—	—	—	90	90	

F — PRINTER CONNECTOR PINOUT

PIN#	FUNCTION
1	Data strobe
2	Data bit 0
3	Data bit 1
4	Data bit 2
5	Data bit 3
6	Data bit 4
7	Data bit 5
8	Data bit 6
9	Data bit 7
11	Busy
31	Printer Reset

G — LISTING ABBREVIATIONS

- Control Codes

ASCII	V Mode	M Mode	Key
5		[WHT]	White
8		[DISH]	Disable Shift
9		[ENSH]	Enable Shift
14		[SWLC]	Switch to lower case
17		[DOWN]	Cursor down
18		[RVON]	Reverse on
19		[HOME]	Home cursor
20		[DEL]	Delete
27		[ESC]	Escape
28		[RED]	Red
29		[RGHT]	Cursor right
30		[GRN]	Green
31		[BLU]	Blue
129		[ORNG]	Orange
133		[F1]	Function 1
134		[F3]	Function 3
135		[F5]	Function 5
136		[F7]	Function 7
137		[F2]	Function 2
138		[F4]	Function 4
139		[F6]	Function 6
140		[F8]	Function 8
141		[SHRT]	Shifted return
142		[SWUC]	Switch to upper case
144		[BLK]	Black
145		[UP]	Cursor up
146		[RVOF]	Reverse off
147		[CLR]	Clear screen
148		[INST]	Insert
149		[BRWN]	Brown
150		[LRED]	Light red
151		[GRY1]	Grey 1
152		[GRY2]	Grey 2

153		[LGRN]	Light green
154		[LBLU]	Light blue
155		[GRY3]	Grey 3
156		[PUR]	Purple
157		[LEFT]	Cursor left
158		[YEL]	Yellow
159		[CYAN]	Cyan

- Graphics Characters

G Mode	K Mode	A Mode	G Mode	K Mode	A Mode
	[S*]	[192]		[S]	[160]
	[SA]	[193]		[CK]	[161]
	[SB]	[194]		[CI]	[162]
	[SC]	[195]		[CT]	[163]
	[SD]	[196]		[C@]	[164]
	[SE]	[197]		[CG]	[165]
	[SF]	[198]		[C+]	[166]
	[SG]	[199]		[CM]	[167]
	[SH]	[200]		[C#]	[168]
	[SI]	[201]		[S#]	[169]
	[SJ]	[202]		[CN]	[170]
	[SK]	[203]		[CQ]	[171]
	[SL]	[204]		[CD]	[172]
	[SN]	[205]		[CZ]	[173]
	[SM]	[206]		[CS]	[174]
	[SO]	[207]		[CP]	[175]
	[SP]	[208]		[CA]	[176]
	[SQ]	[209]		[CE]	[177]
	[SR]	[210]		[CR]	[178]
	[SS]	[211]		[CW]	[179]
	[ST]	[212]		[CH]	[180]
	[SU]	[213]		[CJ]	[181]
	[SV]	[214]		[CL]	[182]
	[SW]	[215]		[CY]	[183]
	[SX]	[216]		[CU]	[184]
	[SY]	[217]		[CO]	[185]
	[SZ]	[218]		[S@]	[186]
	[S+]	[219]		[CF]	[187]
	[C-]	[220]		[CC]	[188]
	[S-]	[221]		[CX]	[189]
	[PI]	[222]		[CV]	[190]
	[C*]	[223]		[CB]	[191]

H — STANDARD ASCII VS. PET ASCII

Dec.	Hex	Standard	PET	Dec.	Hex	Standard	PET
32	20	space	space	77	4D	M	m
33	21	!	!	78	4E	N	n
34	22	"	"	79	4F	O	o
35	23	#	#	80	50	P	p
36	24	$	$	81	51	Q	q
37	25	%	%	82	52	R	r
38	26	&	&	83	53	S	s
39	27	'	'	84	54	T	t
40	28	(	(	85	55	U	u
41	29	)	)	86	56	V	v
42	2A	*	*	87	57	W	w
43	2B	+	+	88	58	X	x
44	2C	,	,	89	59	Y	y
45	2D	-	-	90	5A	Z	z
46	2E	.	.	91	5B	[	[
47	2F	/	/	92	5C	\	\
48	30	0	0	93	5D	]	]
49	31	1	1	94	5E	^	^
50	32	2	2	97	61	a	A
51	33	3	3	98	62	b	B
52	34	4	4	99	63	c	C
53	35	5	5	100	64	d	D
54	36	6	6	101	65	e	E
55	37	7	7	102	66	f	F
56	38	8	8	103	67	g	G
57	39	9	9	104	68	h	H
58	3A	:	:	105	69	i	I
59	3B	;	;	106	6A	j	J
60	3C	<	<	107	6B	k	K
61	3D	=	=	108	6C	l	L
62	3E	>	>	109	6D	m	M
63	3F	?	?	110	6E	n	N
64	40	@	@	111	6F	o	O
65	41	A	a	112	70	p	P
66	42	B	b	113	71	q	Q
67	43	C	c	114	72	r	R
68	44	D	d	115	73	s	S
69	45	E	e	116	74	t	T
70	46	F	f	117	75	u	U
71	47	G	g	118	76	v	V
72	48	H	h	119	77	w	W
73	49	I	i	120	78	x	X
74	4A	J	j	121	79	y	Y
75	4B	K	k	122	7A	z	Z
76	4C	L	l				

I — HOW THE INTERFACE WORKS

Contained within the small case of your Super Graphix interface is a small self-contained computer with 8K of RAM and an 8K program in ROM. To put it simply, this computer receives data sent from your computer (the C-64 or Vic) through the serial cable (the round grey one). It then takes this data and does numerous transformations depending on how the DIP switches are set and how you have 'programmed' the interface (what modes you have selected, what commands you have sent to the command channel, etc.). The data is also modified so that it will work with your specific printer (that's why you have to set the 3 switches to match your printer).

This simple overview is nearly correct when all you send to be printed is text in the normal dot matrix mode. Other interface operations aren't quite so simple:

The C-64 hi-res dump channel accepts 8000 bytes from the user (a straightforward dump of the hi-res bit map) and completely reconstructs it so that it is arranged as it is on the screen.

The patterns for the Near Letter Quality font are stored in the ROM along with the control program. The User fonts, however, are stored in areas of the 8K RAM. This is how fonts are printed:

1) The first time the printer carriage is moved from left to right, 8 of the 16 vertical dots of each letter are printed.

2) The paper is moved up half the width of a dot.

3) The carriage again moves from left to right (pass 2) but this time it prints the other 8 of the 16 vertical dots of each letter.

When both passes have been printed, therefore, each letter is comprised of 16 unique dots vertically and 9 dots horizontally (separated by anywhere from 0 to 7 dots).

A Superfont is printed the same way, except that each character is 18 dots wide. Also, the printer is instructed to print the dots more compactly so that the 18 will occupy the same space as 9 normally did.

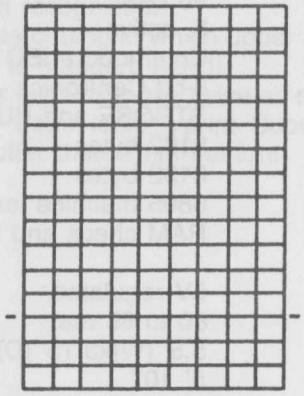
Any line that has underlining in it causes the interface to make a third pass, at which time only the underlining is printed.

The different pitches, boldfacing, superscripts, and subscripts are all achieved by manipulating the patterns for the font.

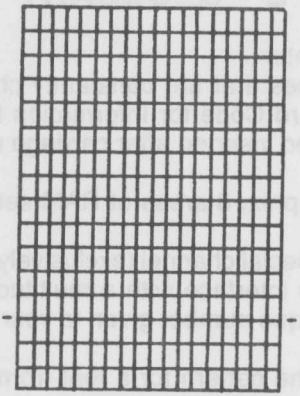
J — FONT CREATION GRIDS

You can use photocopies of these grids to experiment with font character creations if you feel more comfortable with a pen and paper than a cursor.

The lines setting off the bottom 3 rows indicate a good place to end the bottom of most characters (you might need to leave the bottom 3 for descenders).



Normal font creation grid (9 x 16)



Superfont creation grid (18 x 16)

K — SPECIFICATIONS

Model	Super Graphix
Printing modes	Text, Commodore graphics, Fonts (3)
Character sets	96 Text 68 Graphics 96 NLQ font 96 User font 1 96 User font 2
Switches	8, active
Input format	Commodore IEC serial
Output format	8-bit Centronics
Handshaking	STROBE and BUSY
RAM	8192 bytes
ROM	8192 bytes
Firmware	6805 machine language
Power-up self test	RAM check and ROM checksum
Power requirements	
Voltage	5V regulated
Current	80 to 85 ma
Dimensions	5.5"(W)x3.15"(D)x.67"(H)
Serial cable length	5' 10"
Parallel cable length	11"
Weight	7.5 oz.

L - GLOSSARY

1525: Commodore's printer
Active switches: Switches that are constantly checked for changes.
ASCII: American Standard Code for Information Interchange.
Auto line feed: A line feed inserted after carriage returns to achieve proper vertical spacing.
Buffer: In the Super Graphix, 3 areas of RAM set aside for housekeeping and speed.
Command channel: A special channel (exclusively on Xetec interfaces) that allows you to control the interface with a multitude of commands.
Device number: The unique number given to your interface to which it (and only it) responds.
Download: To transfer the pattern for a font from disk into the interface's RAM.
Emulation: Acting exactly like another device.

Escape code: A sequence of codes starting with an escape (27) which can be sent within text. Escape codes are not printable, but instruct the printer or interface to change its operation in some way.
Font: A character set whose letters are printed in dot matrix but at a high enough density to look typed or even typeset.
Font retention: The preservation of the downloaded fonts when the interface's power is shut off.
Keystrokes: A listing mode on Xetec interfaces in which the key presses that produce a graphics character are listed instead of the character itself.
Mnemonics: Abbreviations for graphics and control characters which are easily remembered and recognized.
Pet ASCII: Commodores coding in which upper and lower case letters are reversed as compared to standard ASCII.
Superfont: A character set which has twice as many horizontal pixels per character resulting in a better looking print. Superfonts take twice as much RAM away from the buffer than a normal font.

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SECONDARY ADDRESSES

0	Upper case/graphics
1	Upper case / graphics (no line feed)
2	Upper case / graphics with fonts
3	Hex dump
4	Transparent
5	Transparent (no line feed)
6	Transparent with fonts
7	Upper/lower case
8	Upper/lower case (no line feed)
9	Upper/lower case with fonts
10	Reserved
11	Font downloading
12	C-64 Hi-res screen dump
13	Upper case Lo-res screen dump
14	Upper/lower Lo-res screen dump
15	Command channel
20 +	Lock the interface

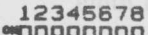
COMMAND CHANNEL COMMANDS

U	Unlock the interface
I	Print the interface identification
E	Empty out the buffer
R	Remove the buffer
B	Use the buffer again
L	Make the buffer large (erase fonts)
M	List control characters in mnemonics — [CLR]
V	List control characters as inverse graphics
G	List graphics characters as graphics —
A	List graphics characters as ASCII values — [173]
K	List graphics characters as keystrokes — [SM]
8	Set line spacing to 8 lines per inch
6	Set line spacing to 6 lines per inch
SB	Leave spaces blank between underlined words
SU	Underline spaces as well as text
SB	Leave spaces blank between underlined words
Wn	Set the width to 'n' columns
FY	Turn on line feeds
FN	Turn off line feeds
QD	Disables the listing mode (cannot list programs)
QE	Enables the listing mode again

USING THE SUPER GRAPHIX WITH VARIOUS PROGRAMS

Speedscript:

For version 1.0 or 2.0:



For version 3.0:

Easy Script:

Setup #1 - Set switches:

Select "MX-80" printer from list
Select "s" for serial

Setup #2 - Set switches:

Select "CBM" printer from list

Script 64:

Setup #1 - Set switches:

Select "EPSON' printer from list
Select "s" for serial

Setup #2 - Set switches:

Select "COMMODORE" printer from list

PaperClip:

Setup #1 - Set switches:

Select printer file best suited for your printer.
If using the interface's NLQ or fonts, use "GEMINI-A-ALF"

Setup #2 - Set switches:

Select "1525-P-ALF" printer file

Print Shop:

Setup #1 - Set switches:

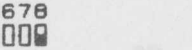
Use Commodore side of disk

Setup #2 - Set switches:

Use non-Commodore side of disk
Go to "Setup" and pick your printer

Fontmaster:

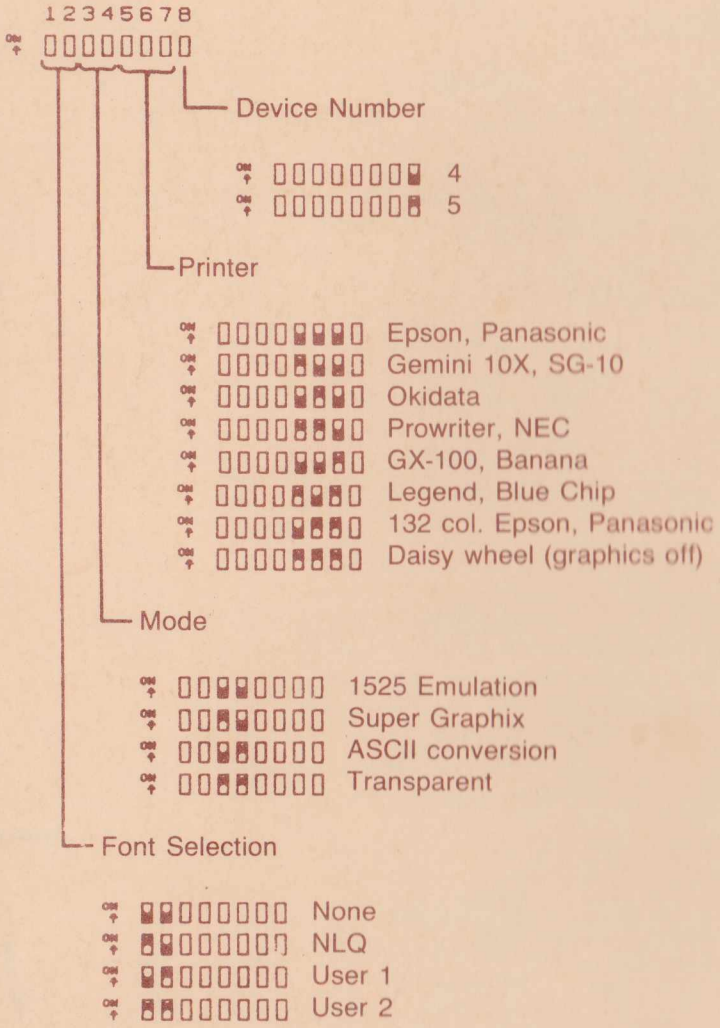
Set switches:



SUPER GRAPHIX OPERATING MODES

SWITCHES		SECONDARY ADDRESSES									
FONT (1,2)	**MODE (3,4)**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
None	1525	DUG	DUG	QUG	H	DT	DT	DT	DLG	DLG	QLG
NLQ	1525	QUG	QUG	QUG	H	DT	DT	QT	QLG	QLG	QLG
User 1	1525	1UG	1UG	1UG	H	DT	DT	1T	1LG	1LG	1LG
User 2	1525	2UG	2UG	2UG	H	DT	DT	2T	2LG	2LG	2LG
None	SupGr.	DUG	DUG	QUG	H	DT	DT	DT	DLG	DLG	QLG
NLQ	SupGr.	QUG	QUG	QUG	H	DT	DT	QT	QLG	QLG	QLG
User 1	SupGr.	1UG	1UG	1UG	H	DT	DT	1T	1LG	1LG	1LG
User 2	SupGr.	2UG	2UG	2UG	H	DT	DT	2T	2LG	2LG	2LG
None	A. Conv	DU	DU	QU	H	DT	DT	DT	DL	DL	QL
NLQ	A. Conv	QU	QU	QU	H	DT	DT	QT	QL	QL	QL
User 1	A. Conv	1U	1U	1U	H	DT	DT	1T	1L	1L	1L
User 2	A. Conv	2U	2U	2U	H	DT	DT	2T	2L	2L	2L
None	Trans.	DT	DT	DT	H	DT	DT	DT	DT	DT	DT
NLQ	Trans.	QT	QT	QT	H	DT	DT	QT	QT	QT	QT
User 1	Trans.	1T	1T	1T	H	DT	DT	1T	1T	1T	1T
User 2	Trans.	2T	2T	2T	H	DT	DT	2T	2T	2T	2T

Key:
- D Dot matrix
- Q Near letter quality
- 1 User font 1
- 2 User font 2
- U Upper case
- L Upper and lower case
- T Transparent
- G Graphics
- H Hex dump
- □ No auto line feeds

NOTES

SUPER GRAPHIX
Switch Function Summary